

**Abstract**

In piezoceramic multilayer actuators, the head region and the foot region consist of inactive, that is to say 5 electrode-free, piezoceramic layers. Due to the arrangement of the metallic electrodes and the layers of the piezoceramic materials, the shrinkage of the piezoceramic material, in particular in the passive head region and foot region, is influenced during the 10 sintering process and can cause the formation of cracks.

Different expansion behaviour of the active and of the passive region during operation also lead to stresses which favour crack formation, in particular at the boundary between both regions.

15 According to the invention, it is therefore proposed that a transition region (11), whose shrinkage and expansion behaviour lies between the shrinkage and expansion behaviour of the active region (10) and the 20 shrinkage and expansion behaviour of an inactive region (8, 9) which are electrode free, adjoins the active region (10) up to the inactive head region (8) and up to the inactive foot region (9).

25 (Figure 1)



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